

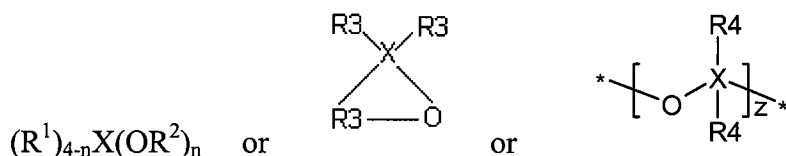
### AMENDMENT TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of the claims in this application:

#### **Listing of Claims:**

1. (Currently Amended) A method of forming an organic molecule, comprising contacting a hydrolase enzyme with an organic reactant, wherein:

the organic reactant comprises the formula:



wherein:

X is selected from the group consisting of silicon and germanium;

R<sup>1</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, alcohol, epoxy, ether, amine,  $-(OXR^4)_y-OXR^4_3$ , and a combination thereof;

R<sup>2</sup> is selected from the group consisting of alkyl, hydrogen, ether and a combination thereof;

R<sup>3</sup> is selected from the group consisting of alkyl, unsaturated alkyl, aryl, hydrogen and a combination thereof;

R<sup>4</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine,  $-(OSiR^5)_y-OSiR^5_3$  and a combination thereof;

R<sup>5</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine, and a combination thereof;

n is an integer from 0 to 4;

y is 0 or is an integer greater than 0; and

z is 3 or is an integer greater than 3;

the hydrolase enzyme comprises ~~lipase, protease, trypsin,~~ cutinase or a combination thereof; and

~~the lipase enzyme is selected from the group consisting of *Candida antarctica* lipase, *Candida antarctica* lipase B, *Rhizomucor miehei* lipase, wheat germ lipase or a combination thereof;~~

~~the protease enzyme is selected from the group consisting of trypsin, papain, pepsin or a combination thereof; and~~

the hydrolase enzyme catalyzes the hydrolysis and condensation of the organic reactant to form the organic molecule.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Original) The method according to claim 1, wherein the formula for the organic reactant is selected from the group consisting of  $(R^1)_4X$ ,  $(R^1)_3X(OR^2)_1$ ,  $(R^1)_2X(OR^2)_2$ ,  $(R^1)_1X(OR^2)_3$  and  $X(OR^2)_4$ .

6. (Original) The method according to claim 1, wherein the concentration of hydrolase enzyme is equal to or greater than 1 mg/mL.

7. (Original) The method according to claim 6, wherein the concentration of hydrolase enzyme is from about 20 mg/mL to about 60 mg/mL.

8. (Original) The method according to claim 7, wherein the concentration of hydrolase enzyme is about 40 mg/mL.

9. (Original) The method according to claim 1, wherein the organic reactant to enzyme mole ratio is less than or equal to about 40000:1.

10. (Original) The method according to claim 1, wherein the reaction is conducted at a pH from about 5.0 to about 8.0.

11. (Cancelled)

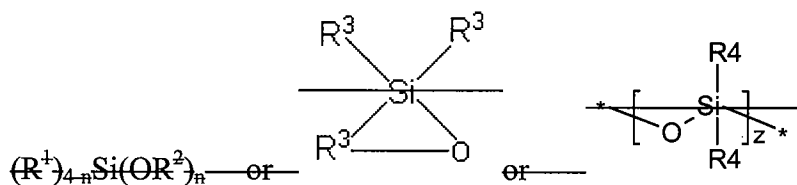
12. (Currently Amended) The method according to claim 1, wherein the reaction is conducted in an aqueous solution or a solvent ~~condition~~.

13. (Original) The method according to claim 1, wherein the reaction is conducted at a temperature of between about 5°C to about 90°C.

14. (Original) The method according to claim 13, wherein the reaction is conducted at a temperature of between about 20°C to about 50°C.

15. (Cancelled)

16. (Currently Amended) A method of forming an ~~organosilicon~~ organic molecule, comprising contacting a hydrolase enzyme with an ~~organosilicon~~ organic reactant, wherein:  
the ~~organosilicon~~ organic reactant ~~comprises the formula~~ is selected from the group consisting of:



wherein:

~~R<sup>1</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, alcohol, epoxy, ether, amine, (OSiR<sup>4</sup>)<sub>y</sub>-OSiR<sup>4</sup><sub>3</sub>, and a combination thereof;~~

~~R<sup>2</sup> is selected from the group consisting of alkyl, hydrogen, ether and a combination thereof;~~

~~R<sup>3</sup> is selected from the group consisting of alkyl, unsaturated alkyl, aryl hydrogen and a combination thereof;~~

~~R<sup>4</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine, (OSiR<sup>5</sup>)<sub>y</sub>-OSiR<sup>5</sup><sub>3</sub> and a combination thereof;~~

~~R<sup>5</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine, and a combination thereof;~~  
~~n is an integer from 0 to 4;~~  
~~y is 0 or is an integer greater than 0; and~~  
~~z is 3 or is an integer greater than 3;~~  
(CH<sub>3</sub>)<sub>2</sub>Si(OCH<sub>3</sub>)<sub>2</sub>; (CH<sub>3</sub>)(CF<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>)Si(OCH<sub>3</sub>)<sub>2</sub>; (C<sub>6</sub>H<sub>5</sub>)(CH<sub>3</sub>)Si(OCH<sub>3</sub>)<sub>2</sub>;  
(CH<sub>3</sub>CH<sub>2</sub>)<sub>2</sub>Ge(OCH<sub>2</sub>CH<sub>3</sub>)<sub>2</sub>; (CH<sub>3</sub>)Si(OCH<sub>2</sub>CH<sub>3</sub>)<sub>3</sub>; Si(OCH<sub>2</sub>CH<sub>3</sub>)<sub>4</sub>; 1,3,5,7-tetramethyl-  
1,3,5,7-tetramethoxy-cyclotetrasiloxane; 1,3-bis(hydroxy)tetramethyldisiloxane;  
[(HO)<sub>2</sub>(CH<sub>3</sub>)SiO]<sub>3</sub>SiCH<sub>3</sub>, or a combination thereof;  
~~the hydrolase enzyme comprises lipase, protease, cutinase or a combination thereof;~~  
~~the lipase enzyme is selected from the group consisting of: *Candida antarctica* lipase,~~  
~~*Candida antarctica* lipase B, *Rhizomucor miehei* lipase, wheat germ lipase, trypsin, cutinase,~~  
~~pepsin, papain, or a combination thereof; and~~  
~~the protease enzyme is selected from the group consisting of trypsin, papain, pepsin or a~~  
~~combination thereof; and~~  
~~the hydrolase enzyme catalyzes the hydrolysis and condensation of the organosilicon~~  
~~organic reactant to form the organosilicon organic molecule.~~

17. (Cancelled)

18. (Cancelled)

19. (Currently Amended) The method according to claim 16, wherein the ~~protease~~ hydrolase enzyme is trypsin.

20. (Cancelled)

21. (Original) The method according to claim 16, wherein the concentration of hydrolase enzyme is equal to or greater than 1 mg/mL.

22. (Original) The method according to claim 21, wherein the concentration of hydrolase enzyme is from about 20 mg/mL to about 60 mg/mL.

23. (Cancelled)

24. (Currently Amended) The method according to claim 16, wherein the ~~organosilicon~~ organic reactant to enzyme mole ratio is less than or equal to about 40000:1.

25. (Original) The method according to claim 16, wherein the reaction is conducted at a pH from about 5.0 to about 8.0.

26. (Cancelled)

27. (Currently Amended) The method according to claim 16, wherein the reaction is conducted in an aqueous solution or a solvent ~~condition~~.

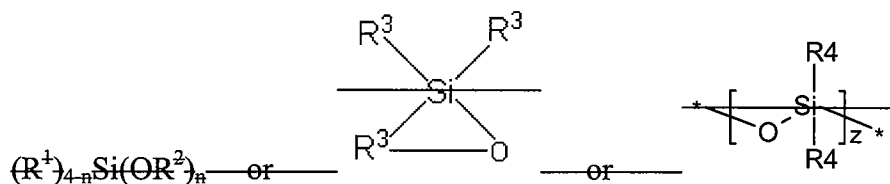
28. (Original) The method according to claim 16, wherein the reaction is conducted at a temperature of between about 5°C to about 90°C.

29. (Original) The method according to claim 28, wherein the reaction is conducted at a temperature of between about 20°C to about 50°C.

30. (Original) The method according to claim 29, wherein the reaction is conducted at a temperature of about 25°C.

31. (Currently Amended) A method of forming an ~~organosilicon~~ organic intermediate molecule, comprising contacting a hydrolase enzyme with an ~~organosilicon~~ organic reactant, wherein:

the ~~organosilicon~~ organic reactant ~~comprises the formula~~ is selected from the group consisting of:



wherein:

~~R<sup>1</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, alcohol, epoxy, ether, amine, (OSiR<sup>4</sup><sub>2</sub>)<sub>y</sub>-OSiR<sup>4</sup><sub>3</sub>, and a combination thereof;~~

~~R<sup>2</sup> is selected from the group consisting of alkyl, hydrogen, ether and a combination thereof;~~

~~R<sup>3</sup> is selected from the group consisting of alkyl, unsaturated alkyl, aryl, hydrogen and a combination thereof;~~

~~R<sup>4</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine, (OSiR<sup>5</sup><sub>2</sub>)<sub>y</sub>-OSiR<sup>5</sup><sub>3</sub> and a combination thereof;~~

~~R<sup>5</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine, and a combination thereof;~~

~~n is an integer from 0 to 4;~~

~~y is 0 or is an integer greater than 0; and~~

~~z is 3 or is an integer greater than 3;~~

~~(CH<sub>3</sub>)<sub>2</sub>Si(OCH<sub>3</sub>)<sub>2</sub>; (CH<sub>3</sub>)(CF<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>)Si(OCH<sub>3</sub>)<sub>2</sub>; (C<sub>6</sub>H<sub>5</sub>)(CH<sub>3</sub>)Si(OCH<sub>3</sub>)<sub>2</sub>;  
(CH<sub>3</sub>CH<sub>2</sub>)<sub>2</sub>Ge(OCH<sub>2</sub>CH<sub>3</sub>)<sub>2</sub>; (CH<sub>3</sub>)Si(OCH<sub>2</sub>CH<sub>3</sub>)<sub>3</sub>; Si(OCH<sub>2</sub>CH<sub>3</sub>)<sub>4</sub>; 1,3,5,7-tetramethyl-  
1,3,5,7-tetramethoxy-cyclotetrasiloxane; 1,3-bis(hydroxy)tetramethyldisiloxane;  
[(HO)<sub>2</sub>(CH<sub>3</sub>)SiO]<sub>3</sub>SiCH<sub>3</sub>, or a combination thereof,~~

~~the hydrolase enzyme comprises lipase, protease, cutinase or a combination thereof;~~

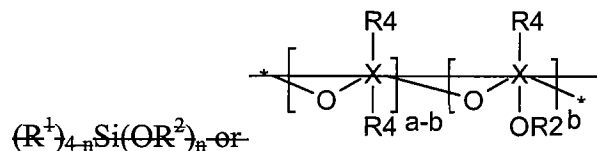
~~the lipase enzyme is selected from the group consisting of *Candida antarctica* lipase, *Candida antarctica* lipase B, *Rhizomucor miehei* lipase, wheat germ lipase, trypsin, cutinase, pepsin, papain, or a combination thereof; and~~

~~the protease enzyme is selected from the group consisting of trypsin, papain, pepsin or a combination thereof; and~~

~~the hydrolase enzyme catalyzes the hydrolysis of the organosilicon organic reactant to form the organosilicon organic intermediate molecule.~~

32. (Currently Amended) A method of forming an organosilicon organic molecule, comprising contacting a hydrolase enzyme with an organosilicon organic intermediate reactant, wherein:

the ~~organosilicon~~ organic intermediate reactant ~~comprises the formula~~ is selected from the group consisting of:



wherein:

~~R<sup>1</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, alcohol, epoxy, ether, amine, (OSiR<sup>4</sup><sub>2</sub>)<sub>y</sub>-OSiR<sup>4</sup><sub>3</sub>, and a combination thereof;~~

~~R<sup>2</sup> is a hydrogen;~~

~~R<sup>3</sup> is selected from the group consisting of alkyl, unsaturated alkyl, aryl, hydrogen and a combination thereof;~~

~~R<sup>4</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine, (OSiR<sup>5</sup><sub>2</sub>)<sub>y</sub>-OSiR<sup>5</sup><sub>3</sub> and a combination thereof;~~

~~R<sup>5</sup> is selected from the group consisting of alkyl, haloalkyl, unsaturated alkyl, aryl, hydrogen, hydroxy, alkoxy, alcohol, epoxy, ether, amine, and a combination thereof;~~

~~n is an integer from 0 to 4; and~~

~~y is 0 or is an integer greater than 0;~~

~~a + b equals z;~~

~~z is 3 or is an integer greater than 3;~~

(CH<sub>3</sub>)<sub>2</sub>Si(OH<sub>2</sub>)<sub>2</sub>; (CH<sub>3</sub>)(CF<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>)Si(OH<sub>2</sub>)<sub>2</sub>; (C<sub>6</sub>H<sub>5</sub>)(CH<sub>3</sub>)Si(OH<sub>2</sub>)<sub>2</sub>;  
(CH<sub>3</sub>CH<sub>2</sub>)<sub>2</sub>Ge(OH<sub>2</sub>)<sub>2</sub>; (CH<sub>3</sub>)Si(OH<sub>2</sub>)<sub>3</sub>; Si(OH)<sub>4</sub>; 1,3,5,7-tetramethyl-1,3,5,7-tetrahydroxy-  
cyclotetrasiloxane; 1,3-bis(hydroxy)tetramethyldisiloxane; [(HO)<sub>2</sub>(CH<sub>3</sub>)SiO]<sub>3</sub>SiCH<sub>3</sub>, or a  
combination thereof,

the hydrolase enzyme ~~comprises lipase, protease, cutinase or a combination thereof;~~  
the ~~lipase enzyme~~ is selected from the group consisting of *Candida antarctica* lipase, *Candida antarctica* lipase B, *Rhizomucor miehei* lipase, wheat germ lipase, trypsin, cutinase, pepsin, papain, or a combination thereof; and

~~the protease enzyme is selected from the group consisting of trypsin, papain, pepsin or a combination thereof; and~~

the hydrolase enzyme catalyzes the condensation of the ~~organosilicon~~ organic intermediate reactant to form the ~~organosilicon~~ organic molecule.

33. (New) A method of forming an organic molecule, comprising contacting a hydrolase enzyme with an organic reactant, wherein:

the organic reactant is selected from the group consisting of: trimethylethoxysilane;  $(\text{Me}_3\text{SiO}(\text{CH}_2\text{CH}_2\text{O})_4\text{CH}_3)$ ; 3-glycidoxypropyldimethylethoxysilane; 1,1-dimethyl-1-sila-2-oxacyclohexane; methyltriethoxysilane; trimethylsilanol; dimethyldimethoxysilane; dimethyldiethoxygermane; or a combination thereof,

the hydrolase enzyme is selected from the group consisting of: trypsin, cutinase, pepsin, papain, *Candida antarctica* lipase, *Candida antarctica* lipase B, *Rhizomucor miehei* lipase, wheat germ lipase, or a combination thereof, and

the hydrolase enzyme catalyzes the hydrolysis and condensation of the organic reactant to form the organic molecule.

34. (New) The method of claim 1, wherein the organic reactant is selected from the group consisting of:  $(\text{CH}_3)_2\text{Si}(\text{OCH}_3)_2$ ;  $(\text{CH}_3)(\text{CF}_3\text{CH}_2\text{CH}_2)\text{Si}(\text{OCH}_3)_2$ ;  $\text{C}_6\text{H}_5(\text{CH}_3)\text{Si}(\text{OCH}_3)_2$ ;  $(\text{CH}_3\text{CH}_2)_2\text{Ge}(\text{OCH}_2\text{CH}_3)_2$ ;  $(\text{CH}_3)\text{Si}(\text{OCH}_2\text{CH}_3)_3$ ;  $\text{Si}(\text{OCH}_2\text{CH}_3)_4$ ; 1,3,5,7-tetramethyl-1,3,5,7-tetramethoxy-cyclotetrasiloxane; 1,3-bis(hydroxy)tetramethyldisiloxane;  $(\text{HO})_2(\text{CH}_3)\text{SiO}_3\text{SiCH}_3$ , or a combination thereof.

35. (New) The method of claim 1, wherein the organic reactant is selected from the group consisting of: trimethylethoxysilane;  $(\text{Me}_3\text{SiO}(\text{CH}_2\text{CH}_2\text{O})_4\text{CH}_3)$ ; 3-glycidoxypropyldimethylethoxysilane; 1,1-dimethyl-1-sila-2-oxacyclohexane; methyltriethoxysilane; trimethylsilanol; dimethyldimethoxysilane; dimethyldiethoxygermane; or a combination thereof.